

**SALTON SEA GEOTHERMAL UNIT 6
POWER PLANT PROJECT**

**RESPONSES TO:
CALIFORNIA ENERGY COMMISSION
DATA REQUESTS, SET THREE (Nos. 107 - 138)**

**Application for Certification (02-AFC-02) for
Salton Sea Geothermal Unit 6 Power Plant Project**

Submitted by:
CE OBSIDIAN ENERGY LLC

Submitted to:
**California Energy Commission
1516 Ninth Street, MS-4
Sacramento, California 95814-5512**

File date: February 5, 2003

Salton Sea Unit #6 Project (02-AFC-2)
Data Request Response Set 3

Table of Contents

	<u>page</u>
AIR QUALITY	1
BIOLOGICAL RESOURCES.....	7
LAND USE	11
TRAFFIC AND TRANSPORTATION.....	15
VISUAL RESOURCES.....	18

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests Set 3

Air Quality

Technical Area: Air Quality

CEC Authors: William Walters

SSU6 Author: Paul Neil

BACKGROUND

Exhaust Gas Chemistry

The Application for Certification (AFC) provides a list of chemical constituents that are anticipated in the proposed facility gas exhaust streams. Staff needs additional information to understand the exhaust constituents and to make sure that the identification of chemical constituents in the proposed facility gas exhaust streams is complete. This information will be valuable in preparing a complete analysis of potential impacts for air quality and public health. The following data requests are provided to obtain more specific information than that provided in response to Public Health Data Request #54.

DATA REQUEST

107. Please confirm that arsine is the chemical form, or the assumed chemical form, of the non-condensable arsenic identified in various sections of the AFC.

Response:

The chemical form of arsenic in the noncondensable gas is assumed to be arsine. The arsenic in the gas phase has not been speciated directly, but it is known that arsenic is present in inorganic form in geothermal brine, and given the reducing environment of the geothermal fluid it is expected that any arsenic in the vapor phase partitioned from this brine is likely to be arsine.

108. Please identify if there will be emission of, or the potential for emission of, periodic table Group V and VI hydrides other than hydrogen sulfide, ammonia, and arsine (e.g. hydrogen selenide), and if so please estimate their emissions.

Response:

The only other Group V or VI hydrides that may be present in the noncondensable gas are hydrogen selenide (H_2Se) and stibine (SbH_3). There are trace levels of both selenium and antimony present in the geothermal brine, so it is possible that a small fraction of these elements will also be present in the gas phase in hydride form.

Hydrogen selenide is stable under similar Eh (reducing) conditions as arsine, but is much more acidic than arsine. As a result, hydrogen selenide is more soluble

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

than arsine in water by at least a factor of 10. Hydrogen selenide is also less stable than arsine at higher temperatures, and tends to decompose to non-volatile form above 160 ° C. Therefore, relatively less selenium hydride gas will be present for a given amount of that element in brine, compared to arsine.

Stibine is stable under similar Eh (reducing) conditions as arsine, and has approximately the same solubility in water. Therefore, the same relative amount of antimony hydride gas will be present for a given amount of that element in brine, compared to arsine.

Hydrogen selenide and stibine emissions from Unit 6 were estimated based on the known quantity of selenium and antimony in the brine, and assuming the same vapor-phase partitioning as measured for arsenic. As noted above, this will provide an over-estimate of emissions for hydrogen selenide, but in both cases the emissions of these hydrides are expected to be very low. These estimates are presented in Table 1 below.

Table 1. Estimated Group V, VI Metal Hydride Emissions from Unit 6

	<u>Arsenic¹</u>	<u>Selenium²</u>	<u>Antimony²</u>
Concentration as Metal Oxide in Brine, M O ₄ (mg/kg)	20	0.009	--
Total Elemental Concentration in Brine (mg/kg)	10.8	0.0050	0.8
Relative Weighting Factor	1.0	0.0005	0.1
Plant Emissions, Uncontrolled (lb/hr)	2.0E-02	9.2E-06	1.5E-03
Plant Emissions, Controlled (lb/hr)	2.0E-03	9.2E-07	1.5E-04
Plant Emissions, Controlled (tons/yr)	8.8E-03	4.0E-06	6.5E-04

1. Based on measured values

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

2. Hydride emissions proportioned relative to As

109. The chemical constituents identified by the AFC in the water and gas streams do not mention phosphorus compounds in any form. Please state whether there will be phosphorus compound emissions, and if so identify the potential chemical forms and estimate their emissions.

Response:

No phosphorus compound emissions are expected from Unit 6. Phosphorus is not typically detectable in geothermal fluids. The high temperature and calcium content of geothermal brine inhibits the mobilization of phosphorus compounds from geothermal reservoir rock.

110. Please state whether any volatile halogenated compounds, organic or inorganic, will be emitted from the proposed facility, and if so please estimate their emissions.

Response:

No volatile halogenated organic compounds are expected to be emitted from the proposed facility. There are no such compounds used in the process, and these compounds are not naturally-occurring and will not be produced from the reservoir.

Trace concentrations of the inorganic halogens, hydrogen chloride and hydrogen fluoride, may be present in the high-pressure steam. These compounds are very soluble at lower temperatures and will be completely dissolved in the condensed steam, so there will be no emissions.

The steam flowrate from the production wells is periodically measured using a sulfur hexafluoride (SF₆) tracer. The tracer is injected into one well at a time for 30 to 45 minutes, and each well is typically tested on a quarterly or semi-annual basis. Although the tracer is injected at very low concentrations (ppb), it will be emitted from the plant with the noncondensable gas during the testing intervals. The total quantity of sulfur hexafluoride that will be emitted per year is equal to 0.25 lbs.

111. Please state whether reduced sulfur compounds, other than hydrogen sulfide, will be emitted from the proposed facility, and if so please estimate their emissions.

Response:

No reduced sulfur compounds, other than hydrogen sulfide, are expected to be emitted from Unit 6. Mercaptan compounds are not usually detectable in geothermal fluids, and if measurable, they are present at concentrations in the

Salton Sea Unit #6 Project (02-AFC-2) Data Requests

range of 4 orders of magnitude lower than hydrogen sulfide (ppm levels vs. % levels in noncondensable gas).

112. Please estimate the methane emissions from the proposed facility.

Response:

Methane concentrations in the brine average about 10 ppm (please refer to Figure 3.3-10A of the AFC). Given a brine flow rate of 12,768,000 lbs per hour (please refer to Figure 3.3-9 of the AFC) and all the methane emitted, the resulting emission rate will be 127.7 lbs per hour. An annual methane emission rate was presented in Table 6.2-1 of the AFC.

113. Please provide the total volatile organic compound mass emissions for the cooling tower and dilution water heaters; and provide mass emissions for each expected organic component of the total organic compound mass emissions.

Response:

All volatile organic compounds produced from the wells will be present in the noncondensable gas stream and vented from the cooling tower. No detectable amount is expected from any other process stream emission source during plant operation. The heavier hydrocarbons, primarily propane, will be partially removed by the carbon bed absorber used to mitigate benzene. However, no credit is taken for any removal efficiency of these hydrocarbons. Table 2 below lists a comprehensive analysis and emission rate for volatile organic compounds in the untreated noncondensable gas, less BTXE which were previously reported. No credit is taken for any removal efficiency.

Table 2. Potential Hydrocarbon Potential Emissions from Unit 6

Gas	Dry Gas ppm by Weight	Mass Flow lbs/hr
Ethylene	<6.84E-01	<3.08E-02
Ethane	2.77E+00	1.25E-01
Propylene	<4.11E-02	<1.85E-03
Propane	1.53E+00	6.90E-02
Isobutane	<2.62E-01	<1.18E-02
1-Butene	<3.54E-03	<1.59E-04
Butane	<8.15E-01	<3.67E-02
2,2-Dimethylpropane	<3.12E-01	<1.40E-02
2-Methylbutane	<1.62E-01	<7.27E-03
1-Pentene	<6.70E-02	<3.01E-03

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

Pentane	<2.65E-01	<1.19E-02
2,2-Dimethylbutane (2 and 3)-	<4.18E-01	<1.88E-02
Methylpentane	<9.05E-01	<4.07E-02
Hexene	<6.01E-01	<2.71E-02
Hexane	<1.92E-01	<8.66E-03
Total VOC (less methaneCH₄, BTXE)		1.94E-01

BACKGROUND

Hydrochloric Acid Tank

The AFC indicates that there will be a 32,000 gallon 32% hydrochloric acid tank. The vapor pressure of 32% hydrochloric acid is approximately 81 mmHg at 104°F. Staff needs additional information regarding this tank, its emission controls, and its estimated emissions.

114. Please identify the emission controls that will be used to control hydrochloric acid emissions from the 32% hydrochloric acid tank, and please provide maximum loading event, maximum daily, and maximum annual emission estimates for the 32% hydrochloric acid tank.

Response:

The HCL tank is currently sized for 18,000 gallons. The emission control proposed for the HCL tank is the use of a pressure vent set at 1.5 inches Hg. The tank is liquid and vapor tight and releases vapor only when the pressure in the tank exceeds the set pressure. The estimated emissions of HCL from the tank are as follows:

Maximum Annual	871 lbs/year
Maximum Daily	4.2 lbs/day
Maximum Loading Event	3.3 lbs

The EPA Tanks 4.0 Program was used in calculating the HCL emissions. Backup calculations are included in Attachment DR-114.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

BACKGROUND

Dilution Water Heaters

The applicant has provided emissions for the dilution water heaters assuming that they are always in use, but the AFC notes that they might not always be in use. Staff needs additional information to address any additional emissions that may occur if the dilution water heaters are bypassed.

115. Please provide the location of the emission exhaust points, emission exhaust parameters (temperature, velocity, stack height and diameter, moisture content), and an emission estimate for all criteria and toxic air pollutants that would occur when the dilution water heaters are not in use.

Response:

Dilution water heaters will be used continuously during operation. The AFC is incorrect with respect to the dilution water heaters; they will always be in use while the brine handling equipment is in use.

116. Please identify the conditions when the dilution water heaters are bypassed or otherwise not in operation and estimate the number of hours per year that this is likely to occur.

Response:

Please see response to data request # 115.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

Biological Resources

Technical Area: Biological Resources

CEC Author: Natasha Nelson

CEC Technical Senior: Jim Brownell

SSU6 Author: EJ Koford

BACKGROUND

The applicant's proposed electrical transmission line routes cross an estimated 27 miles of agricultural lands and 2.8 miles of undeveloped Bureau of Land Management (BLM) land. The proposed routes are along paved and unpaved roads that in general contain other distribution and transmission lines within their shoulders.

The routes cross both the New River and the Alamo River, but no other large water bodies have been identified. Brown pelicans have been confirmed by the California Department of Fish and Game as using the Salton Sea and aquaculture (fish) farms in the County. However, staff cannot find information on aquaculture (fish) farms in the AFC.

DATA REQUEST

117. The transmission line route crosses Alamo River at Hooper Road. This location does not contain a bridge, or any overhead utilities. Provide an explanation of why this location was chosen instead of Sinclair Road (approximately 2000 feet north) which does have a bridge and overhead utilities. Provide an analysis of how increasing the density of overhead lines may increase threats to the many shorebirds, gulls, and herons found during applicant's surveys.

Response:

The Transmission route chosen was established on existing IID right of way and property. As stated in section 5.5 of the AFC, no significant impact from the transmission is expected.

118. Based on the analysis of potential impacts to shorebirds, gulls, and herons, describe if there are any design limitations to either placing the route on Sinclair Road (between English and Kalin Road) or underground for the Alamo River crossing.

Response:

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

The placement of the transmission line on Sinclair Road would require additional right of way to widen the path and realign existing circuits. Alignment may require increasing structure height for clearance and separation of transitioning circuits. Undergrounding the transmission line at the Alamo River crossing would require that additional facilities be built on each side of the Alamo River to allow overhead/underground transition of high voltage circuits in a fenced and protected area.

119. Describe whether the transmission line route within BLM land is adjacent to the existing paved road that leads to the active landfill. If the route is only partially on this road, describe at what point it diverts.

Response:

The route for the L-Line Interconnection presented in the AFC (Fig. No 5.10-2c) is adjacent to the road referred to in Data Request # 119. The specific pole location is subject to final design.

120. Provide a list of all aquaculture (fish) farms, and their addresses, which are within one mile of the proposed transmission line routes or the power plant site.

Response:

The only aquaculture farm the Applicant is aware of within one mile of the proposed transmission line routes or power plant site is an algae farm on the south side of the transmission line, east of SR-111. Earthrise Nutritionals raises spirulina as a dietary supplement in shallow ponds that are visible on aerial photographs provided in the AFC (Figure 3.3-2D). Their address is PO Box 270, Calipatria, CA 92233.

BACKGROUND

The "L-line Interconnection" crosses Bureau of Land Management land for 2.8 miles. While the AFC presented information on the flat-tailed horned lizard, the Biological Assessment did not contain an analysis of potential impacts of transmission line construction on this species. During a meeting with the BLM on November 14, 2002, Bureau staff indicated that this species may need to be covered under their consultation with the U.S. Fish and Wildlife Service.

121. Provide an overview of flat-tailed horned lizard biology and occurrences in a manner consistent with the treatment of federally listed species in the Biological Assessment prepared for CE Obsidian Energy LLC by URS on July 11, 2002. Include a determination of "effect" as defined by the U.S. Fish and Wildlife Service for federally listed species.

Response:

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

At the time the Biological Assessment was submitted, the flat-tailed horned lizard was not listed as a threatened or endangered species under the federal Endangered Species Act. For this reason, it was not included in the analysis of impacts to listed species. On January 3, 2003, the U.S. Fish and Wildlife Service withdrew the proposed rule to list the flat tailed horned lizard (Federal Register Vol 68, No. 2 p. 321-342). This was based on a determination that threats to the species and its habitat are not likely to endanger the species in the foreseeable future throughout all or significant portions of its range. Therefore, a determination of "effect" as defined by the U.S. Fish and Wildlife Service for federally listed species is not required.

For these reasons, the Applicant believes it is unnecessary to include an evaluation of "effect" for the flat-tailed horned lizard in the Biological Assessment.

122. Provide the current regulatory status of the flat-tailed horned lizard and the date of any anticipated filings by the U.S. Fish and Wildlife Service on this species.

Response:

On January 3, 2003, the U.S. Fish and Wildlife Service withdrew the proposal to list the flat tailed horned lizard as threatened under the federal Endangered Species Act, stating that threats to the species and its habitat are not likely to endanger the species in the foreseeable future throughout all or significant portions of its range.

BACKGROUND

The applicant's proposed transmission line route would connect to the L-Line 2.8 miles west of State Highway 86. In November 2002, the applicant indicated to staff that they may propose a Bannister Substation on the west side of State Highway 86 on Imperial Irrigation District lands. The applicant is requesting concurrent review of an alternative interconnection to the L-Line which does not cross Bureau of Land Management Land (please see Section 6.2.2 of the AFC). The alternative L-line interconnection would route north along State Highway 86 for approximately 7.5 miles to the intersection of State Highway 86 and the L-Line (note, the application is unclear as to which shoulder of State Route 86 would be used). Staff does not have adequate information on how the proposed Bannister Substation could be incorporated into the alternative L-line interconnection proposal.

DATA REQUEST

123. Please describe how the proposed alternative L-line interconnection would connect to the proposed Bannister Substation on the west side of State Route 86. If instead, a substation at a new location would be used in conjunction with the longer alternate route, please describe the new location and include a recent

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

aerial photo of the site. Selection of substation sites that are not in active agricultural production will require a biological report which includes vegetation types and the potential for federal- or state-listed species to be present.

Response:

The Bannister site is a switching station, not a substation. The entry to and from the proposed station is currently being designed. The only difference is that the line would cross Hwy 86 twice near the corner of Bannister Road and Hwy 86 if the alternate route were selected. The switching station site is located within the biological survey corridor, which has been fully evaluated in the AFC. IID owns the land proposed for the switching station.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

Land Use

Technical Area: Land Use

CEC Author: David Flores

SSU6 Author: Jerry Salamy

BACKGROUND

The applicant has stated (AFC page 5.8-3) that the proposed geothermal power plant project is within a Heavy Agricultural, Geothermal Overlay Zone (A-3-G) in which both are permitted uses subject to the requirements of a conditional use permit or its equivalent for new facilities.

In accordance with the Warren-Alquist Act (Section 25525) the project must conform with local zoning ordinances. The Warren-Alquist Act imposes a general “conformity” requirement that a proposed new or modified energy facility meet the local government’s zoning standards in order to grant it a license to operate. Commission staff will work with the County of Imperial to insure that conditional use permit (CUP) conditions are implemented.

DATA REQUEST

124. Please list the required Imperial County conditional use permits and demonstrate in writing that the proposed facility will be in conformance with each in accordance with their zoning regulations. A Land Use Permit, a Development Permit, and setback requirements at [sic] are three such areas.

Response:

Please see AFC section 5.8.5.3 for a discussion of local land use permitting. Imperial County will determine the project’s conformity with its standards.

BACKGROUND

The applicant has further stated that the transmission line interconnection proposed on BLM land must meet the requirements of the California Desert Conservation Area plan (CDCA). To comply with the CDCA plan, an amendment involving designation of a new utility corridor will be required. A BLM right-of-way grant would also be required for that portion of the transmission line.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

DATA REQUEST

125. Please provide in writing the proposed schedule and status for obtaining the right-of-way grant and amendment to the CDCA plan from the Bureau of Land Management.

Response:

The following is the proposed schedule and status for obtaining the right-of-way grant and amendment to the CDCA plan from the Bureau of Land Management. (Personal Communication, BLM, 2003)

January 18, 2003	Federal Register notice drafted and sent by BLM for management review.
April 18, 2003	Federal Register notice will be published.
May 18, 2003	Public comment period ends.
June 18, 2003	BLM finishes writing the CDCA Plan Amendment.
September 18, 2003	Federal Register notice will be published.
October 18, 2003	Public comment period ends.

BACKGROUND

The County of Imperial Sign Ordinance governs the size, location, and type of signs permitted on the project site. The AFC provides no indication of the signs proposed by the applicant. It is not possible to determine compliance with the County Sign Ordinance from existing data submitted.

DATA REQUEST

126. Provide a sign program that includes the following:
- a. The location, size and number of all signs proposed;

Response:

The project is proposing to install one monument-style sign at the entrance of the SSU6 Project location. This sign will be approximately 7 feet in height and 3.5 feet in width and will comply with Imperial County Land Use Ordinance §90401.01. Figure LU126A presents an example of the type of signage to be installed at the entrance of the facility. The Control Room Building may also include a sign. This sign will be in the form of 18-inch letters mounted on the side of the buildings' cladding and will comply with Imperial County Land Use Ordinance §90401.03. Figure LU-126B presents an example of the type of signage to be installed on the control room.

- b. The materials that will be used to construct the signs;

**Salton Sea Unit #6 Project (02-AFC-2)
Data Requests**

Response:

The monument-style sign will be constructed of a textured cinderblock base (approximately 2 feet in height) with a metal sign anchored to the base. Figures LU-126A and LU-126B present an example of the proposed signs, subject to final design.

- c. The lighting technique that will be used for the signs;

Response:

The monument-style sign will not be lighted as shown in Figure LU-126A. Overhead lights will light the control room signage.

- d. The installed height and dimensions of the signs;

Response:

Please refer to Data Request #126(a).

- e. The type of signs to be used (for example, a monument sign or a building mounted sign);

Response:

Please refer to Data Request #126(a).

- f. If signs will be located on buildings, identify the distance from the surface of the sign to the surface of the structure to which it will be attached;

Response:

The control room sign will be 18-inch high metal letters, flush-mounted to the buildings' cladding.

- g. An architectural rendering of all signs proposed; and

Response:

At this stage of the project's design an architectural rendering of the signage is not available. The Applicant does not believe an architectural rendering is needed to determine compliance with applicable Imperial County LORS.

- h. The content of each sign proposed.

Response:

The sign is expected to read "Salton Sea Unit 6, CALENERGY Operating Corporation, A MidAmerican Energy Holdings Company Affiliate". Subject to final design.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

BACKGROUND

The County of Imperial Zoning Code restricts lot coverage in the Heavy Agricultural, Geothermal Overlay Zone that includes the project site. The site plan does not provide calculations of the site area and the aerial extent of proposed roofed structures. This data is required to evaluate project compliance with zone lot coverage requirements.

DATA REQUEST

127. Provide calculations to show the project's consistency with the County of Imperial's Heavy Agricultural, Geothermal Overlay Zone lot coverage standards with respect to:

- a. the aerial extent of the project site (i.e. the entire ultimate legal parcels proposed for development) in square feet; and

Response:

The project site is approximately 80 acres, with a footprint of 2,487.5 feet by 1,401 feet for a total square footage of 3,484,987.5.

- b. the aerial extent of proposed and existing structures with roofs in square feet to show consistency with County of Imperial lot coverage standards.

Response:

The project site is currently in agricultural production and has no existing roofed structures. There are nine roofed structures proposed for the project site (H2S Abatement – 3,487 sq ft, Control Room Building – 11,570 sq ft, Filter Press System – 10,656, PDC 601 – 1,377 sq ft, PDC 603 – 1,453 sq ft, PDC 604 – 420 sq ft, Hydro-Blast Pad – 4,688 sq ft, Firewater Pump House – 420 sq ft, and PDC 602 – 387 sq ft). The total square footage of these roofed structures is 34,458.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

Traffic and Transportation

Technical Area: Traffic and Transportation

CEC Author: Ken Peterson

SSU6 Author:

BACKGROUND

The AFC states that a rail switchyard to the east of State Highway 111 (SH-111) at Sinclair Road would be used as the unloading point for project heavy equipment and machinery transported by rail line (p. 5.10-7). The equipment and machinery would be transported from this point on Sinclair Road across SH-111. Staff has concluded upon review that use of this unloading point may require use of private land.

DATA REQUEST

128. Please submit an explanation of safety measures necessary for the transport of heavy equipment and machinery across SH-111.

Response:

The Applicant is not planning on using rail deliveries for project construction or operation (please refer to the Applicant's response to CURE Data Request Set 3, #35).

129. Please provide information on ownership, leasing arrangements, and any other information necessary to demonstrate site control by the applicant for any private land to be used as part of the rail line unloading point.

Response:

Not applicable.

BACKGROUND

The two transmission line routes will cross several roads and construction could disrupt traffic. Temporary staging areas would be used when construction areas are at locations that are distant from the plant site. The AFC states that traffic crossing-related delays and conflicts could occur at or near the entrance of the proposed access road connecting the laydown area to Boyle Road (p. 5.10-11).

DATA REQUEST

130. Please discuss the proposed mitigation for safety and traffic obstruction concerns during construction at transmission line road crossings and on Boyle Road at or near the access road entrance.

Salton Sea Unit #6 Project (02-AFC-2)

Data Requests

Response:

The Project will comply with mitigation measures outlined in section 5.10.4 of the AFC. Signage, flagpersons, and traffic control measures will be implemented as mitigation for safety and traffic obstructions at the transmission line road crossings and on Boyle Road. These measures will be coordinated with the Imperial County Department of Public Works. Because traffic impacts are anticipated to be minimal and alternate routes can be established, no other mitigation is necessary.

131. Please describe construction worker parking facilities when transmission line temporary staging areas are to be used.

Response:

Temporary staging areas would be located at the SSU6 plant site, near the end of the transmission line ROW, and approximately every 4 to 5 miles along the route. These areas would be located in previously disturbed sites wherever possible, and would be approximately 300 by 900 feet (AFC, Section 3.4.3.4.5, page 3-41). In addition, parking facilities will be addressed in the Construction Traffic Control Plan (TCP). Parking for workers will be included when these temporary staging areas are being constructed. The project expects a maximum of 58 total workers to be required during the peak construction month for the transmission lines (AFC, table 3.4-1). These workers will be working at staging areas along the entire transmission line route. Because this work force will be distributed among multiple staging areas, no significant traffic impacts are anticipated as a result of staging area worker trips.

BACKGROUND

McKendry Road and Boyle Road would be used for project construction truck traffic. Both of these roads are unpaved in the vicinity of the project. The AFC states that access to the laydown area would be by a road to be constructed from Boyle Road along the middle of the parcel between McKendry Road and Peterson Road (p. 5.10-5).

DATA REQUEST

132. Please discuss improvements necessary for McKendry and Boyle Roads, and any other road improvements necessary for project construction and operation.

Response:

Improvements to McKendry and Boyle Roads include paving the roadway within the vicinity of the project only. The roadway will be paved to Imperial County and CalTrans design standards. An access road from Boyle Road along the middle of the parcel between McKendry Road and Peterson Road to the site

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

will also be paved to the same design standards. No other road improvements are necessary for project construction and operation.

133. Please describe project road improvements that would be required by the Imperial County Zoning Ordinance and project building permit conditions.

Response:

The Imperial County General Plan requires new development to “to provide for local roads to serve the direct access needs of abutting property.” McKendry and Boyle Roads, as well as the new access road from Boyle Road along the middle of the parcel between McKendry and Peterson Roads, must be constructed to serve the project site. These roads will serve the project site and abutting property. Therefore, no other road improvements are necessary.

BACKGROUND

The Commission staff needs to evaluate the construction and operation period routes that would be taken by hazardous materials supply and waste removal trucks.

DATA REQUEST

134. Please describe the construction and operation period routes that would be taken by hazardous materials supply and waste removal trucks.

Response:

The project will comply with California Vehicle Codes pertaining to hazardous materials outlined in section 5.10.5.1 of the AFC. (Please refer to the previous Data Adequacy Comments dated September 18, 2002.) Hazardous materials supply trucks and waste removal trucks required during the construction period are anticipated to travel via SH-111, then exit west to Sinclair Road, then south on Gentry Road and, west on McKendry Road, and south on Boyle Road towards the proposed site.

Hazardous materials supply trucks and waste removal trucks that are required during the operations period will likely travel on the same route described above. Other operations-related traffic are anticipated to travel east on Bannister Road from SH-78/86, then north on Forrester Road, east on Walker Road, and north on Gentry Road before following McKendry Road and Boyle Road to the proposed site.

**Salton Sea Unit #6 Project (02-AFC-2)
Data Requests**

Visual Resources

Technical Area: Visual Resources

CEC Author: James Adams

SSU6 Author:

BACKGROUND

Staff has identified the need for the establishment of three new key observation points and additional current and photo-simulations. These will be used to determine if there could be any significant visual impacts on local residents, travelers, or visitors to the Sonny Bono Salton Sea National Wildlife Refuge.

Well over 10,000 people visit the Salton Sea Refuge Complex each year. The project would be visible from the top of Rock Hill and staff needs to consider the amount of the view disruption caused by the project plumes from this public observation area.

DATA REQUEST

135. Please provide a high-quality 11" by 17" color photo-simulation, at life-size scale, from a location 200 yards south of the SR-111 point of intersection with the proposed Imperial Irrigation District (IID) Midway interconnection line. Also provide a current view without the proposed lines at the same size and scale.

Response:

As part of the Applicant's response to the amended version of data requests 136, 137 and 139, the applicant also plans on presenting a high-quality 11" by 17" color photograph from a location 200 yards south of SR-111 at the point of intersection with the proposed IID Midway interconnection line as well as a high-quality 11" by 17" color photograph from a location 200 yards south of SR-111 of a transmission line comparable to the proposed SSU6 line. From these photographs, it will be apparent that no significant visual resources will be impacted from the proposed transmission line.

136. Please provide a high-quality 11" by 17" color photo-simulation, at life-size scale, from a location 200 yards east of the SR-111 point of intersection with the proposed IID interconnection line proceeding to the L-line interconnection. Also provide a current view without the proposed lines at the same size and scale.

Response:

An amended version of this data request was issued on January 29, 2003, as part of set four. Applicant plans to respond to the amended data request.

Salton Sea Unit #6 Project (02-AFC-2)
Data Requests

- 137 Please provide a high-quality 11" by 17" color photo-simulation, 180-degree panoramic view with the proposed project at center, during average winter meteorological conditions from the public viewing area at the top of Rock Hill. Also provide a current view at the same size and scale.

Response:

An amended version of this data request was issued on January 29, 2003, as part of set four. Applicant plans to respond to the amended data request.

- 138 Please provide a revised Visual Sphere of Influence Figure 5.12-1(from the AFC) showing the new key observation points.

Response:

A revised Visual Sphere of Influence for the project showing the new key observation points will also be included with the Applicant's response to amended data requests 136, 137 and 139.

- 139 Please provide high-resolution electronic versions (PDF format acceptable) on a CD of all figures presented in the visual section of the AFC, and the figures prepared in response to these data requests.

Response:

An amended version of this data request was issued on January 29, 2003, as part of set four. Applicant plans to respond to the amended data request.

Attachment DR-114

HCL Emission Calculations

1. Maximum Loading Event

1 Truck at 5,000 gallons (3 trucks every 4 days)

$5000\text{gal} * 0.1337\text{ ft}^3/\text{gal} = 668.5\text{ ft}^3$

Vapor Density (August) = 0.0092 lb/ft³ (Tanks 4.0 page 3)

Vapor Saturation Factor = 0.5415 (Tanks 4.0 page 3)

HCL Emission = $668.5\text{ ft}^3 * 0.0092\text{ lb/ft}^3 * 0.5415$

HCL Emission = 3.33 lbs

2. Maximum Daily

Use maximum loading event plus standing losses for a day

Standing losses for June = 26.6 lbs/mo (Tanks 4.0 page 3)

Standing losses for 1 day in June = 0.89 lbs/day

Loading losses = 3.3 lbs

HCL Emission = 4.2 lbs/day

3. Maximum Annual Emissions

HCL Emission = 871 lbs/year (Tanks 4.0 page 5)

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	HCL ACID TANK
City:	
State:	
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	19.00
Diameter (ft):	14.00
Liquid Height (ft):	15.50
Avg. Liquid Height (ft):	9.38
Volume (gallons):	18,000.00
Turnovers:	68.00
Net Throughput (gal/yr):	1,224,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition:	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	14.00

Breather Vent Settings

Vacuum Settings (psig):	-0.74
Pressure Settings (psig):	0.74

Meteorological Data used in Emissions Calculations: Yuma, Arizona (Avg Atmospheric Pressure = 14.6 psia)

TANKS 4.0

Emissions Report - Detail Format

Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
32% HCL	Jan	76.51	65.27	87.75	78.51	0.6671	0.4363	0.8724	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774
32% HCL	Feb	80.80	66.86	94.74	78.51	0.7841	0.4469	1.1894	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774
32% HCL	Mar	85.99	68.98	103.00	78.51	0.8501	0.4611	1.5100	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774
32% HCL	Apr	92.34	71.95	112.73	78.51	1.0434	0.5276	1.5100	36.5000			36.50	Option 1: VP80 = .774 VP90 = .901
32% HCL	May	97.90	75.44	120.37	78.51	1.3824	0.6344	1.5100	36.5000			36.50	Option 1: VP80 = .774 VP90 = .901
32% HCL	Jun	102.31	79.15	125.47	78.51	1.5100	0.7480	1.5100	36.5000			36.50	
32% HCL	Jul	102.42	82.47	122.36	78.51	1.5100	0.8054	1.5100	36.5000			36.50	
32% HCL	Aug	101.13	82.08	120.17	78.51	1.5100	0.8004	1.5100	36.5000			36.50	
32% HCL	Sep	96.60	78.91	114.29	78.51	1.3028	0.7405	1.5100	36.5000			36.50	Option 1: VP80 = .774 VP90 = .901
32% HCL	Oct	88.92	73.75	104.08	78.51	0.8873	0.5829	1.5100	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774
32% HCL	Nov	80.73	68.39	93.06	78.51	0.7832	0.4572	1.0873	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774
32% HCL	Dec	75.81	65.22	86.40	78.51	0.6458	0.4360	0.8552	36.5000			36.50	Option 1: VP70 = .468 VP80 = .774

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	1.3859	7.7820	16.9150	22.0087	27.6920	26.5967	20.6584	19.2779	16.5952	13.0278	4.9831	0.4651
Vapor Space Volume (cu ft):	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055
Vapor Density (lb/cu ft):	0.0042	0.0049	0.0053	0.0064	0.0084	0.0091	0.0091	0.0092	0.0080	0.0055	0.0049	0.0041
Vapor Space Expansion Factor:	0.0089	0.0498	0.0934	0.1111	0.1155	0.1100	0.0827	0.0770	0.0738	0.0702	0.0298	0.0031
Vented Vapor Saturation Factor:	0.7277	0.6946	0.6772	0.6309	0.5633	0.5415	0.5415	0.5415	0.5778	0.6678	0.6948	0.7341
Tank Vapor Space Volume												
Vapor Space Volume (cu ft):	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055	1,628.7055
Tank Diameter (ft):	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000
Vapor Space Outage (ft):	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803
Tank Shell Height (ft):	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000	19.0000
Average Liquid Height (ft):	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800	9.3800
Roof Outage (ft):	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603
Roof Outage (Dome Roof)												
Roof Outage (ft):	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603	0.9603
Dome Radius (ft):	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000
Shell Radius (ft):	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0042	0.0049	0.0053	0.0064	0.0084	0.0091	0.0091	0.0092	0.0080	0.0055	0.0049	0.0041
Vapor Molecular Weight (lb/lb-mole):	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6671	0.7841	0.8501	1.0434	1.3824	1.5100	1.5100	1.5100	1.3028	0.8873	0.7832	0.6458
Daily Avg. Liquid Surface Temp. (deg. R):	536.1777	540.4655	545.6602	552.0085	557.5743	561.9779	562.0868	560.7969	556.2683	548.5880	540.3954	535.4807
Daily Average Ambient Temp. (deg. F):	56.4500	60.6500	64.8500	71.4000	79.0000	87.6500	93.6500	92.7000	86.8500	76.2500	64.1500	56.4000
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767	538.1767
Tank Paint Solar Absorptance (Shell):	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,096.0000	1,443.0000	1,919.0000	2,412.0000	2,728.0000	2,813.0000	2,453.0000	2,329.0000	2,051.0000	1,622.0000	1,214.0000	1,000.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0089	0.0498	0.0934	0.1111	0.1155	0.1100	0.0827	0.0770	0.0738	0.0702	0.0298	0.0031
Daily Vapor Temperature Range (deg. R):	44.9523	55.7596	68.0535	81.5630	89.8698	92.6360	79.7768	76.1827	70.7669	60.6522	49.3329	42.3440
Daily Vapor Pressure Range (psia):	0.4361	0.7425	1.0489	0.9824	0.8756	0.7620	0.7046	0.7096	0.7695	0.9271	0.6300	0.4192
Breather Vent Press. Setting Range(psia):	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800	1.4800
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6671	0.7841	0.8501	1.0434	1.3824	1.5100	1.5100	1.5100	1.3028	0.8873	0.7832	0.6458
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.4363	0.4469	0.4611	0.5276	0.6344	0.7480	0.8054	0.8004	0.7405	0.5829	0.4572	0.4360
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.8724	1.1894	1.5100	1.5100	1.5100	1.5100	1.5100	1.5100	1.5100	1.5100	1.0873	0.8552
Daily Avg. Liquid Surface Temp. (deg R):	536.1777	540.4655	545.6602	552.0085	557.5743	561.9779	562.0868	560.7969	556.2683	548.5880	540.3954	535.4807
Daily Min. Liquid Surface Temp. (deg R):	524.9396	526.5256	528.6469	531.6177	535.1069	538.8189	542.1426	541.7513	538.5766	533.4250	528.0621	524.8947
Daily Max. Liquid Surface Temp. (deg R):	547.4158	554.4054	562.6736	572.3993	580.0417	585.1369	582.0310	579.8426	573.9600	563.7511	552.7286	546.0667
Daily Ambient Temp. Range (deg. R):	24.5000	27.5000	28.1000	29.8000	30.4000	31.3000	25.9000	25.2000	27.3000	28.1000	26.5000	24.2000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.7277	0.6946	0.6772	0.6309	0.5633	0.5415	0.5415	0.5415	0.5778	0.6678	0.6948	0.7341
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6671	0.7841	0.8501	1.0434	1.3824	1.5100	1.5100	1.5100	1.3028	0.8873	0.7832	0.6458
Vapor Space Outage (ft):	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803	10.5803

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	35.9459	42.2482	45.8029	56.2202	74.4835	81.3602	81.3602	81.3602	70.1981	47.8063	42.2002	34.7968
Vapor Molecular Weight (lb/lb-mole):	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000	36.5000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6671	0.7841	0.8501	1.0434	1.3824	1.5100	1.5100	1.5100	1.3028	0.8873	0.7832	0.6458
Net Throughput (gal/mo.):	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000	102,000.0000
Annual Turnovers:	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Turnover Factor:	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078	0.6078
Maximum Liquid Volume (gal):	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000	18,000.0000
Maximum Liquid Height (ft):	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000	15.5000
Tank Diameter (ft):	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	37.3318	50.0302	62.7179	78.2289	102.1755	107.9569	102.0186	100.6382	86.7933	60.8341	47.1833	35.2619

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
32% HCL	693.78	177.39	871.17

Attachment
Figure Lu-126A



Figure LU-126A Example of SSU6 Signage

Attachment
Figure Lu-126B



Figure LU-126B Example of SSU6 Signage